

975,911; Pulse generators. UNITED KINGDOM ATOMIC ENERGY AUTHORITY. May 14, 1962 (May 18, 1961). No 18136/61 Heading H3P.

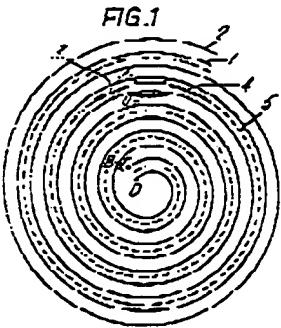
A high-voltage pulse-generator comprises two sheets 1, 2 of conductive material and two sheets of insulant (not shown) arranged alternately and wound together in a roll to form a structure which may alternatively be regarded as a roll capacitor or as two open ended strip transmission lines having a common conductor. The path of propagation through one of these lines is indicated by a broken line (this is the "active" line) and the path through the other (the "passive" line) is not marked. The sheets may be charged from a source (not shown) and a discharge may be initiated by closing a switch which is connected across one of the transmission lines formed by the sheets at points AO about midway along it. It is stated that a voltage having a value about one hundred times the charging voltage is built up between the extremities of the sheets and that a triangular pulse having a peak amplitude may be derived between terminals at the inner and outer ends of one of the sheets. The described mode of operation of the generator is not amendable to detailed abridgement but may be deduced by considering the effects of the travelling waves which originate at OA when the switch is closed and propagate in the directions shown towards the open end of the "active" transmission line. Only half of the capacitor is discharged during the time the wave takes to travel to the extremities of the line. At these points it is reflected and recharges the line but at a potential opposite in sign to the original potential across the line. On arrival of the waves at the switch a total voltage of  $2_nV$  ( $n$  is the number of turns,  $V$  is the charge voltage) exists between the extremities of the sheets and upon the second arrival of the waves at the switch this voltage again becomes zero. The cyclic process is theoretically endless, but this practice is limited, amongst other things, by (a) resistive losses due to small skin-depth and small characteristic impedance; (b) coupling between the ends of the lines. Improved performance can be obtained by tapering the ends of the lines by inserting a ferromagnetic core to increase the inductance or by separating the ends of the sheets by 180 degrees. Switch inductance is reduced by using high-pressure gas, liquid or solid dielectric switches. The conductors may be made of aluminum foil and the insulators from polyethylene tetraphthalate. The whole binding is potted in an epoxy resin.

988,777. Pulse generators. UNITED KINGDOM ATOMIC ENERGY AUTHORITY. Jan. 4, 1963 (Jan. 9, 1962) No. 799/62, Heading H3P (Also in Division H1)

A pulse generator of the kind described in Specification 988,778, has a make switch for establishing a conducting path between a pair of electrodes, the switch comprising solid dielectric material separating the electrodes, the material being

underside of the temple-member. The microphone rests in foam plastic in a holder 12 fused with a nose 17 in which there is a rubber-lined orifice 19 giving access to the microphone opening 18. The hearing aid amplifier 8 and the microphone holder 12 are secured to a common base to form a unit which can readily be removed from the temple-member. The amplifier includes a volume control 9. The battery 5 is accommodated in a pivoted holder 6.

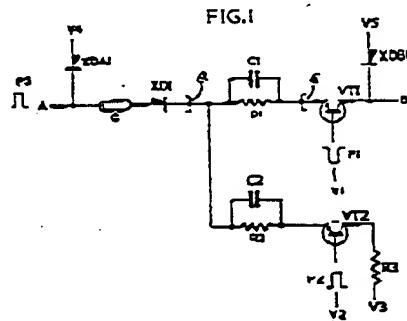
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975,944. Pulse modulation circuits; telegraphy; semi-conductor circuits. POST-MASTER GENERAL. Dec. 13, 1960 [Dec. 18, 1959]. No. 43173/59. Headings H3T, H4L and H4P.



In a pulse transmission system interference caused by the capacitance of the pulse transmission path or reflected energy due to mismatching, is reduced by connecting across the output of the path a transistor with a normally conducting emitter-collector path in series with a resistive load equal to the characteristic impedance of the path, pulses coincident with the transmitted pulses being applied to the base to cut off the transistor and allow the transmitted pulses to appear at the output of the path. As shown, a coaxial cable C in a time division multiplexer communication system, is provided at its output and with a plurality of transistor gates VII controlled by pulses P1 &c. to conduct only when a pulse P3 is received in coincidence with a pulse P1. The output end of the cable is also connected via a resistor-capacitor combination C2, R2, the emitter-collector circuit of a transistor VT2, and a